



DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
2170 SW Canal Street  
Stuart, FL 34997

REPLY TO  
ATTENTION OF

17 MAR 2008

Regulatory Division  
Special Projects and Enforcement Branch  
SAJ-2007-4361(NW-AAZ)

South Florida Water Management District  
Attn: Carol Wehle  
3301 Gun Club Road  
West Palm Beach, FL 33416

Dear Ms. Wehle:

Your application for a Department of the Army permit received on July 10, 2007, has been assigned number SAJ-2007-4361(NW-AAZ). A review of the information and drawings provided shows the proposed work is to restore the wetlands and uplands on the Grant Parcel. The restoration plan includes reducing the amount of open water (greater than 2 feet water depth) acreage from 88 acres to 24 acres, creating and enhancing 86 acres of freshwater marsh habitat (less than 2 feet of water depth), and enhancement of 7.3 acres of cypress wetlands. During the dry season, the site will contain approximately 24 acres deep water refugia areas. Approximately 13 acres of spoil material would be redistributed to partially backfill the deep water borrow areas to create approximately 86 acres of short-hydroperiod freshwater marsh wetlands. The short-hydroperiod wetlands will dry down completely during most dry seasons and concentrate fish for wading bird foraging. Approximately 8 acres of Cypress areas will be graded to an elevation ranging from 15.0 to 16.0 feet NGVD. No dredge/fill material will be placed in wetlands or littoral shelves along the fringes of the borrow pits. As a component of the CREW and the Southern CREW Critical Project, the Grant Parcel would be included in the CREW and the Southern CREW Critical Project monitoring and maintenance plan. The purpose of the project is to restore ecological habitat on the property. The project is located within the boundaries of a larger overall restoration project known as the Southern Corkscrew Regional Ecosystem Watershed (CREW) Project Additions and the Imperial River Flowway Restoration (Southern CREW) Project. The Grant Parcel borders the north side of Bonita Beach Road. The proposed project is located in Section 35, Township 47 South, Range 26 East, Lee County, Florida.

Your project, as depicted on the [enclosed/received] drawings, is authorized by Nationwide Permit (NWP) Number 27. In addition, project specific conditions have been enclosed. This verification is valid until 17 MAR 2010. Please access the U.S. Army Corps of Engineers' Jacksonville District's Regulatory web address at <http://www.saj.usace.army.mil/regulatory/permitting/nwp/nwp.htm> to access web links to view the Final Nationwide Permits, Federal Register Vol. 72, dated March 12, 2007, the Corrections to the Final Nationwide Permits, Federal Register 72, May 8, 2007, and the List of Regional Conditions. These files contain the description of the Nationwide Permit authorization, the Nationwide Permit general conditions, and the regional conditions, which apply specifically to this verification for NWP 27. Additionally, enclosed is a list of the six General Conditions, which apply to all Department of the Army authorizations. You must comply with all of the special and general conditions and any project specific condition of this authorization or you may be subject to enforcement action. In the event you have not completed construction of your project within the specified time limit, a separate application or re-verification may be required.

The following special conditions are included with this verification:

1. Within 60 days of completion of the authorized work or at the expiration of the construction window of this permit, whichever occurs first, the Permittee shall submit as-built drawings of the authorized work and a completed As-Built Certification Form (Attachment 1) to the Corps. The drawings shall be signed and sealed by a registered professional engineer and include the following:

- a. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings (8½-inch by 11-inch). The drawing should show all "earth disturbance," including wetland impacts, water management structures, and any on-site mitigation areas.

- b. List any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the As-Built Certification Form the deviations

between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or As-Built Certification Form does not constitute approval of any deviations by the U.S. Army Corps of Engineers.

c. The Department of the Army Permit number.

d. Include pre- and post-construction aerial photographs of the project site, if available.

2. The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Permittee will be required, upon due notice from the U.S. Army Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

3. No structure or work shall adversely affect or disturb properties listed in the National Register of Historic Places or those eligible for inclusion in the National Register. Prior to the start of work, the Permittee or other party on the Permittee's behalf, shall conduct a search in the National Register Information System (NRIS). Information can be found at; <http://www.cr.nps.gov/nr/research/nris.htm>. Information on properties eligible for inclusion in the National Register can be identified by contacting the Florida Master File Office by email at [fmsfile@dos.state.fl.us](mailto:fmsfile@dos.state.fl.us) or by telephone at 850-245-6440.

If unexpected cultural resources are encountered at any time within the project area that was not the subject of a previous cultural resource assessment survey, work should cease in the immediate vicinity of such discoveries. The permittee, or other party, should notify the SHPO immediately, as well as the appropriate Army Corps of Engineers office. After such notifications, project activities should not resume without verbal and/or written authorization from the SHPO.

If unmarked human remains are encountered, all work shall stop immediately, and the proper authorities notified in accordance with Section 872.05, Florida Statutes, unless on Federal lands. After such notifications, project activities on non-Federal lands shall not resume without verbal and/or written authorization from the Florida State Archaeologist for finds under his or her jurisdiction.

4. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.

5. Reduction and/or elimination of turbid water conditions in adjacent water bodies and wetlands are to be achieved through the use of silt curtains or screens in the construction area during periods of fill placement.

6. The permittee shall adhere to the Standard Protection Measures for the Eastern Indigo Snake dated February 2004.

7. The permittee shall abide by the *Southern CREW Restoration Project Ag Field Wetland Creation and Enhancement Area Billy Don Grant Parcel Monitoring Plan* and the *Billy Don Grant Parcel Wetland Restoration Description*.

8. **Performance Standards:** To meet the objectives of the approved compensatory mitigation plan, the Permittee shall achieve the following performance standards:

a. At least 80 percent cover by appropriate wetland species (i.e., FAC or wetter).

b. Less than 5 percent cover of Category I and II invasive exotic plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at <http://www.fleppc.org>, and shall include the nuisance species primrose willow (*Ludwigia peruviana*), dogfennel (*Eupatorium capillifolium*), Bermuda grass (*Cynodon spp.*), Bahia grass (*Paspalum notatum*), and cattail (*Typha spp.*).

c. Less than 20 percent mortality of planted wetland species.

d. Hydrologic enhancement will result in soils that are saturated to the surface between 5 and 12.5 percent of the growing season.

The Permittee shall achieve the above performance standards by the end of the 5-year monitoring period, with no maintenance during the 5th year of monitoring. In the event that the above performance standards have not been achieved, the Permittee shall undertake a remediation program approved by the Corps in accordance with the **Remediation** Special Condition of this permit.

9. **Monitoring and Reporting Timeframes:** To show compliance with the performance standards the Permittee shall complete the following:

a. Perform a time-zero monitoring event of the wetland mitigation area(s) within 60 days of completion of the compensatory mitigation objectives identified in the **Compensatory Mitigation** Special Condition of this permit.

b. Submit the time-zero report to the Corps within 60 days of completion of the monitoring event. The report will include a paragraph depicting baseline conditions of the mitigation site(s) prior to initiation of the compensatory mitigation objectives and a detailed plan view drawing of all created, enhanced and/or restored mitigation areas.

c. Subsequent to completion of the compensatory mitigation objectives, perform semi-annual monitoring of the wetland mitigation areas for the first 3 years and annual monitoring thereafter for a total of no less than 5 years of monitoring.

d. Submit annual monitoring reports to the Corps within 60 days of completion of the monitoring event. Semi-annual monitoring will be combined into one annual monitoring report.

e. Monitor the mitigation area(s) and submit annual monitoring reports to the Corps until released in accordance with the **Mitigation Release** Special Condition of this permit.

10. **Reporting Format:** Annual monitoring reports shall follow a 10-page maximum report format for assessing compensatory mitigation sites. The Permittee shall submit all documentation to the Corps on 8½-inch by 11-inch paper, and include the following:

a. Project Overview (1 Page):

- (1) Department of the Army Permit Number
- (2) Name and contact information of Permittee and consultant
- (3) Name of party responsible for conducting the monitoring and the date(s) the inspection was conducted
- (4) A summary paragraph defining the purpose for the approved project, acreage and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the aquatic impacts
- (5) Written description on the location and any identifiable information to locate the site perimeter(s)
- (6) Directions to the mitigation site (from a major highway)
- (7) Dates compensatory mitigation commenced and/or was completed
- (8) Short statement on whether the performance standards are being met
- (9) Dates of any recent corrective or maintenance activities conducted since the previous report submission
- (10) Specific recommendations for any additional corrective or remedial actions.

b. Requirements (1 page): List the monitoring requirements and performance standards, as specified in the approved mitigation plan and special conditions of this permit, and evaluate whether the compensatory mitigation project site is successfully achieving the approved performance standards or trending towards success.

c. Summary Data (maximum of 4 pages): Data shall be provided to substantiate the success and/or potential challenges associated with the compensatory mitigation project. Any photo documentation shall be dated and clearly labeled with the

direction from which the photo was taken, and be identified on the appropriate maps.

d. Maps (maximum of 3 pages): Maps shall be provided to show the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan.

e. Conclusions (1 page): A general statement shall be included describing the conditions of the compensatory mitigation project. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the Permittee, including a timetable, shall be provided.

11. **Remediation:** If the restoration work fails to meet the performance standards 5 years after completion of the compensatory mitigation objectives, the compensatory mitigation will be deemed unsuccessful. Within 60 days of notification by the Corps that the compensatory mitigation is unsuccessful, the Permittee shall submit to the Corps an alternate compensatory mitigation proposal to fully offset the functional loss that occurred as a result of the project. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of wetland function associated with the unsuccessful compensatory mitigation activities. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Permittee will complete the alternate compensatory mitigation proposal.

This letter of authorization does not obviate the necessity to obtain any other Federal, State, or local permits, which may be required. In Florida, projects qualifying for this NWP must be authorized under Part IV of Chapter 373 by the Department of Environmental Protection, a water management district under §. 373.069, F.S., or a local government with delegated authority under §. 373.441, F.S., and receive Water Quality Certification (WQC) and Coastal Zone Consistency Concurrence (CZCC) (or a waiver), as well as any authorizations required by the State for the use of sovereignty submerged lands. You should check State-permitting requirements with the Florida Department of Environmental Protection or the appropriate water management

district. In addition, the permittee is responsible for meeting the terms and conditions of the Grant Agreement between the SFWMD and the Department of the Interior.

This letter does not give absolute Federal authority to perform the work as specified on your application. The proposed work may be subject to local building restrictions mandated by the National Flood Insurance Program. You should contact your local office that issues building permits to determine if your site is located in a flood-prone area, and if you must comply with the local building requirements mandated by the National Flood Insurance Program.

If you are unable to access the internet or require a hardcopy of any of the conditions, limitations, or expiration date for the above referenced NWP, please contact Alisa Zarbo by telephone at 772-219-8418.

Thank you for your cooperation with our permit program. The Corps Jacksonville District Regulatory Division is committed to improving service to our customers. We strive to perform our duty in a friendly and timely manner while working to preserve our environment. We invite you to take a few minutes to visit the following link and complete our automated Customer Service Survey: <http://regulatory.usacesurvey.com/>. Your input is appreciated - favorable or otherwise.

Sincerely,

  
for Alisa Zarbo  
Project Manager

Enclosures

bcc:  
CESAJ-RD-PE

GENERAL CONDITIONS  
33 CFR PART 320-330

PUBLISHED FEDERAL REGISTER DATED 13 NOVEMBER 1986

1. The time limit for completing the work authorized ends on **date identified in the letter**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.
4. If you sell the property associated with this permit you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow a representative from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

SELF-CERTIFICATION STATEMENT OF COMPLIANCE

Permit Number: NW-27  
Application Number: SAJ-2007-4361

Permittee's Name & Address (please print or type): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

Location of the Work: \_\_\_\_\_

\_\_\_\_\_  
Date Work Started: \_\_\_\_\_ Date Work Completed: \_\_\_\_\_

Description of the Work (e.g., bank stabilization, residential or  
commercial filling, docks, dredging, etc.): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
Acreage or Square Feet of Impacts to Waters of the United States: \_\_\_\_\_

Describe Mitigation completed (if applicable): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
Describe any Deviations from Permit (attach drawing(s) depicting the  
deviations): \_\_\_\_\_

\*\*\*\*\*

I certify that all work, and mitigation (if applicable) was done in  
accordance with the limitations and conditions as described in the  
permit. Any deviations as described above are depicted on the  
attached drawing(s).

\_\_\_\_\_  
Signature of Permittee

\_\_\_\_\_  
Date

DEPARTMENT OF THE ARMY PERMIT TRANSFER REQUEST

PERMIT NUMBER: \_\_\_\_\_

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. Although the construction period for works authorized by Department of the Army permits is finite, the permit itself, with its limitations, does not expire.

To validate the transfer of this permit and the associated responsibilities associated with compliance with its terms and conditions, have the transferee sign and date below and mail to the U.S. Army Corps of Engineers, Enforcement Section, Post Office Box 4970, Jacksonville, FL 32232-0019.

\_\_\_\_\_  
(TRANSFeree-SIGNATURE)

\_\_\_\_\_  
(SUBDIVISION)

\_\_\_\_\_  
(DATE)

\_\_\_\_\_  
(LOT)

\_\_\_\_\_  
(BLOCK)

\_\_\_\_\_  
(NAME-PRINTED)

\_\_\_\_\_  
(STREET ADDRESS)

\_\_\_\_\_  
(MAILING ADDRESS)

\_\_\_\_\_  
(CITY, STATE, ZIP CODE)

## **Billy Don Grant Parcel Wetland Restoration Description**

The Billy Don Grant Parcel wetland restoration plan is part of the larger overall Southern CREW Imperial River Flow way restoration project. The environmentally critical area east of Bonita Springs has been significantly altered by the construction of roads, house pads, agricultural berms, and ditches. These alterations have eliminated historic sheet flow and created water impoundments resulting in an increase in flooding events. In addition, urban and agricultural runoff has increased pollutant loading to the Imperial River (an Outstanding Florida Water) all of which has caused a disruption of natural wetland functions.

Water that historically flowed southwest through this parcel and adjacent lands has been diverted to the east by canals, road beds and single family house pads. These activities have decreased the hydroperiod (excessive drainage) in wetlands to the west of CREW (Corkscrew Regional Ecosystem Watershed) and the Corkscrew Sanctuary (Audubon) and increased hydroperiods within the CREW and Corkscrew Sanctuary.

The Billy Don Grant Parcel Restoration is a 118 acre parcel within the Southern CREW project footprint. The project consists of constructing and restoring a freshwater wetland on a previous agricultural field. Currently, the site contains several borrow pits, depressional areas and soils that were excavated and stockpiled on site which will not sustain wetland habitat. The hydrologic restoration of the parcel will create wetland habitat and fish refugia as a short-hydroperiod freshwater marsh.

Restoration activities include re-grading existing filled and agricultural areas, filling ditches, and removing berms in accordance with the proposed restoration plan. The completed project will provide shallow foraging habitat in the freshwater marsh areas and gentle side slopes on the deep water depressions for tactile feeder wading birds, specifically the Wood Stork, white ibis and roseate spoonbills. Additionally, the plan provides and maintains the existing Panther habitat. Existing Cypress areas will remain and exotic vegetation removed.

This plan minimizes earthwork while still achieving the desired habitat. The proposed grading plan creates approximately 86 acres of short-hydroperiod freshwater marsh that will dry down completely during most dry seasons and concentrate fish for wading bird foraging. The dry season water table is approximately 13.0 feet NGVD and the wet season water table is expected to increase to an elevation of 16.0 feet NGVD. Deep water refugia areas during the dry season will be approximately 24 acres and the Cypress areas will be approximately 7 acres with an elevation ranging from 15.0 to 16.0 feet NGVD. Site grading in the proposed short-hydroperiod freshwater marsh habitat areas will be approximately 14 feet NGVD resulting in average wet season water depths of 2 feet.

### Design Assumptions

No fill material will be imported to the site. All grading will be accomplished by regrading the material currently stockpiled and from filled areas onsite. Based on criteria for panther habitat criteria, all Freshwater Marsh Areas (aka emergent marsh areas) must be within two feet of the average wet season water table of 16.0 feet NGVD to avoid impact to panther habitat. To meet panther habitat criteria all existing drought shelves (areas between 2 and 5 feet below the wet season water table) must be filled, leaving only the deep fish refugia areas (the deep lakes) unfilled. Once the shelves are filled to 14.0 feet NGVD from material on site, there will not be any additional fill to create any shallower areas. The shallower areas are desirable to provide dry down areas at various elevations to concentrate food source for the tactile feeders given changing water tables throughout the dry season.

The site will be left rough graded, leaving all graded areas, the emergent marsh areas, with uneven surfaces. The means of grading will be left up to the contractor.

Construction schedule will be determined after permits are issued. Construction will be completed within the timeframes established under the restoration agreement between the SFWMD and Ronto Corporation. Plantings in the Emergent Marsh Areas can not be scheduled until the water table returns to near average wet season levels. Water levels are currently 3 feet below average levels at the site for this time of year.

The perimeter berms are to remain at this time and therefore there will be no offsite flows in or out of the project. The county wells located next to and nearby vicinities have been and will be continue to be used establish water elevations in the area.

**Acreage Table**

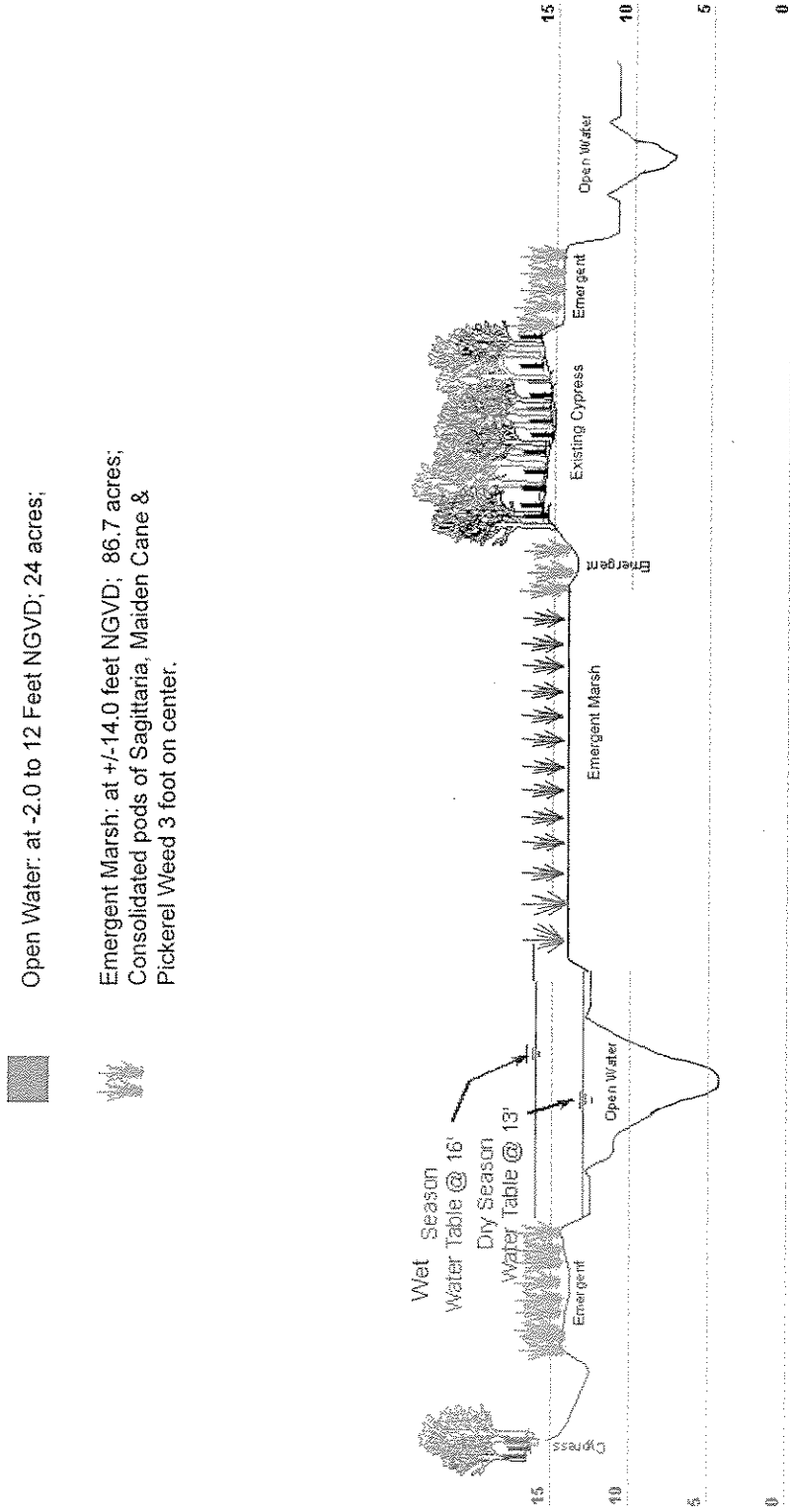
	Open Water (acreage greater than 2 feet depth during average wet season)	Acres of spoil to be redistributed	Cypress	Freshwater Marsh
Existing conditions	88	14	7	9
Proposed plan	24	0	7	87

### Planting Plan

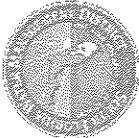
Design water depths should provide wetland plant community habitat. Planting in the emergent marshes, from elevation 13.5 to 14.5 feet NGVD will be planted with Sagittaria, Maiden Cane and Pickerelweed in consolidated pods on 3 foot centers.

Plantings shall be performed based on Lee County Land Development Code restoration code for native plantings. Planting success of all plantings described will require 80 percent survival after two years.

# Typical Cross Section Planting Description



Open Water: at -2.0 to 12 Feet NGVD; 24 acres;  
Emergent Marsh: at +/-14.0 feet NGVD; 86.7 acres;  
Consolidated pods of Sagittaria, Maiden Cane &  
Pickerel Weed 3 foot on center.

	<p><b>Southern Crew Imperial River Flowway Critical Restoration Project</b></p>	<p>Typical Cross Section</p>	<p>This data is a conceptual tool utilized for project development and implementation only. This data is not self-executing or binding, and does not otherwise affect the interests of any person including any vested rights or existing uses of real property.</p>
<p>Scale: 1/8" = 1'-0"</p> <p>Date: 06/07/2007</p> <p>Page: 14 of 15</p>	<p>Notes:</p> <ol style="list-style-type: none"> <li>1) Elevations shown hereon are referenced to Feet, NGVD 29.</li> <li>2) The surface was constructed by digitizing contours at specified elevations and at specified locations. The contours were then turned into a TIN surface. The TIN surface was then used to construct the cross section.</li> <li>3) The scales shown hereon reflect the horizontal axis.</li> <li>4) The vertical scale has been exaggerated 25x.</li> </ol>	<p>1:3,000      1 inch equals 250 feet</p> <p>0    60    120    240 Feet</p>	

## Monitoring Description



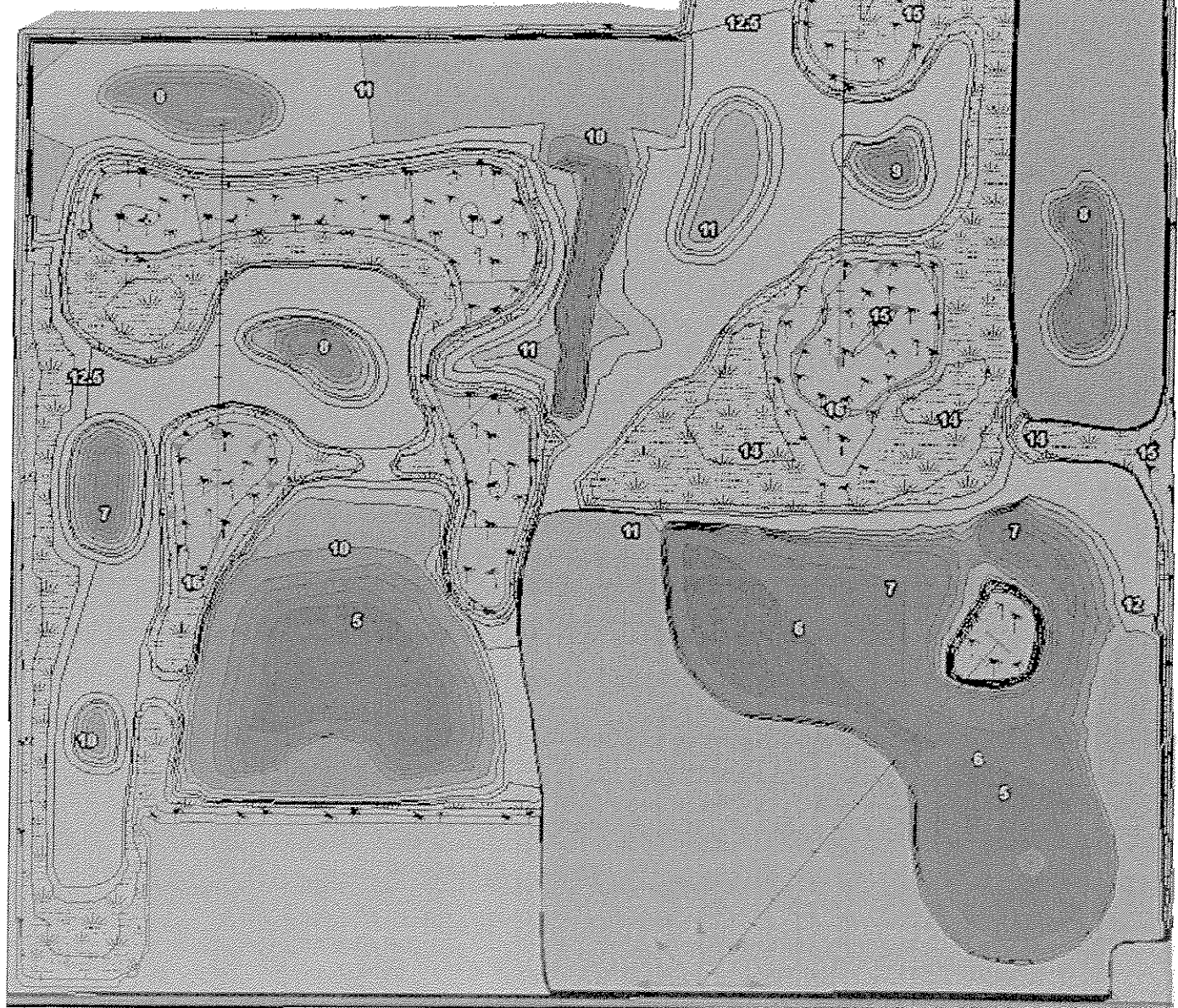
Vegetation Transects: Transects where scientific monitoring will be performed



Staff Gauges: Locations where water levels will be measured.



Photographic Stations: Locations where panoramic pictures will be taken.



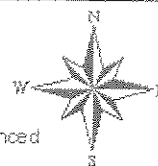
### Southern Crew Imperial River Flowway Critical Restoration Project

16 - 17	10 - 11
15 - 16	9 - 10
14 - 15	8 - 9
13 - 14	7 - 8
12 - 13	6 - 7
11 - 12	5 - 6

#### Planting Description

	Emergent Marsh
	Cypress Swamp

Notes:  
1) Elevations shown hereon are referenced to Feet, NGVD29.



### Proposed Plan Map - Monitoring -

This data is a conceptual tool utilized for project development and implementation only. This data is not self-executing or binding, and does not otherwise affect the interests of any person including any vested rights or existing uses of real property.

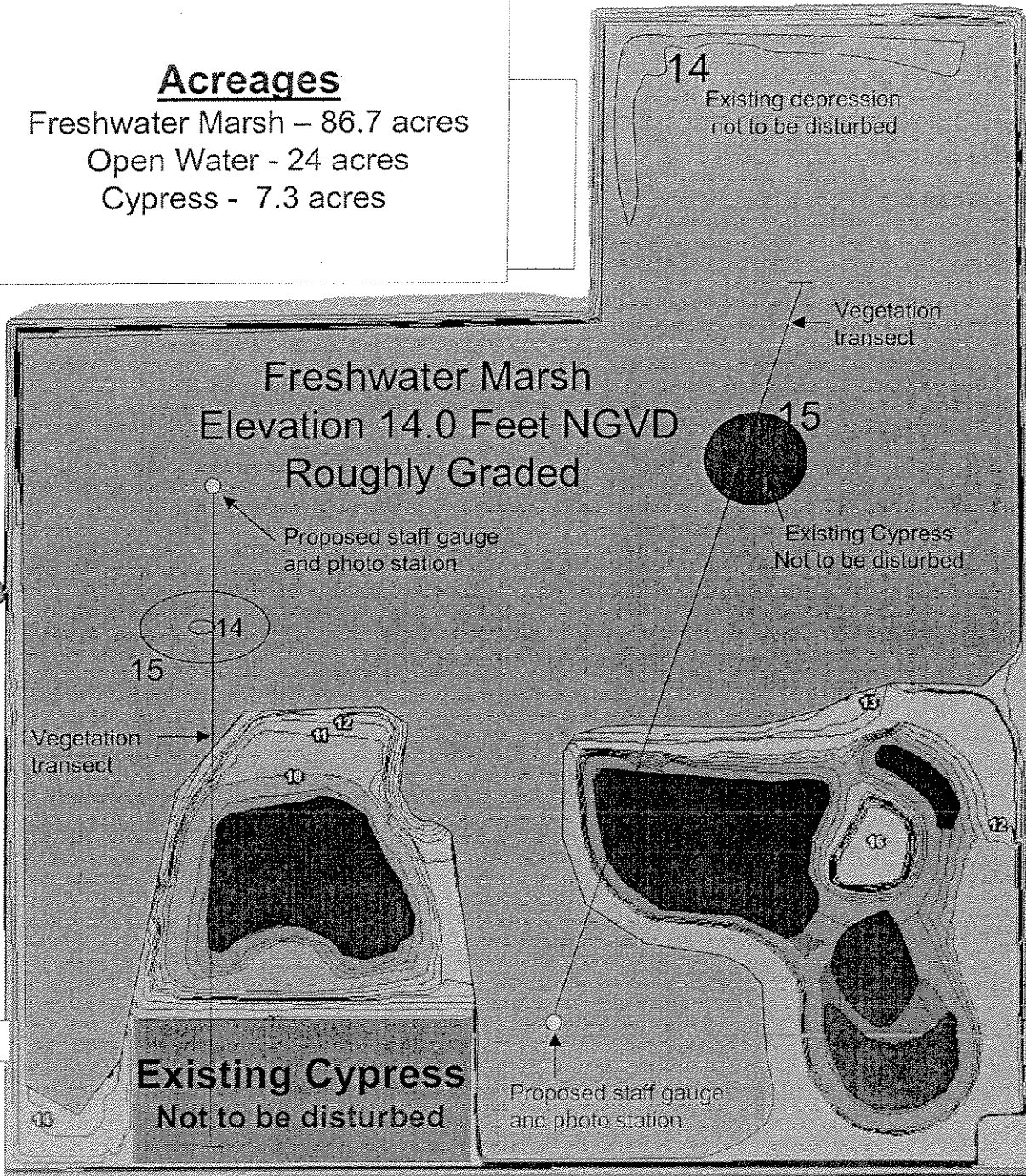
1:3,600 1 inch equals 300.0 feet

0 60 120 240 Feet



## Acreages

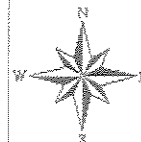
Freshwater Marsh – 86.7 acres  
Open Water - 24 acres  
Cypress - 7.3 acres



Southern Crew Imperial River Flowway  
Critical Restoration Project

Proposed Plan Map  
- Site Elevation -

This data is a conceptual tool utilized for project development and implementation only. This data is not self-executing or binding, and does not otherwise affect the interests of any person including any vested rights or existing uses of real property.



1:3,600 1 inch equals 300.0 feet  
0 75 150 300 Feet  
[Scale bar]

**Southern CREW Restoration Project  
Ag Field Wetland Creation and Enhancement Area  
Billy Don Grant Parcel  
Monitoring Plan**

## **1.0 Introduction**

The Ag field wetland creation and enhancement of a previous excavated agricultural field is a small part of the larger Southern CREW Imperial River Flow way Critical Restoration project. The proposed wetland creation and enhancement area will include areas of, at grade or slightly higher, topographic relief containing ponded depressions, sloughs and wading bird habitat that should provide fish refugia and foraging habitat for Wood Storks, White Ibis and Roseatte Spoonbill.

## **2.0 Wetland Creation and Enhancement Plan**

The wetland creation and enhancement plan includes several deep water fish refugia, submerged marsh, emergent marsh, cypress swamp and the preservation of an existing cypress dome. In addition, an exotic vegetation management program, in accordance with the SFWMD exotic vegetation standards, will be implemented for the entire area and the site maintained in perpetuity.

Native wetland planting is also proposed for the submerged and emergent marsh areas as well as the Cypress areas, to attain 80% aerial coverage of native species. It is anticipated that 80% survival of native wetland species will occur after two years. However, if 80% survival of planted species is not achieved, a supplemental planting plan will be submitted to the ACOE for review and approval. In addition, exotics or nuisance species will compose no more than 5% total coverage of the site. Maintenance of exotic and or nuisance species may include the use of herbicides and manual removal.

The proposed wetland creation and enhancement plan will incur unavoidable, adverse impacts to existing wetlands and surface waters within the project footprint. Avoidance and minimization of impacts to existing wetlands and surface waters were used to the maximum extent practical in the preparation of this plan and design for this project. The Uniform Mitigation Assessment Method (UMAM) (Chapter 62-345 Florida Statute), which evaluates wetland function, was used to determine the Functional Capacity Units (FCU's) loss (FCU debits) due to these impacts. Table 1 outlines the Functional loss (debits) and associated lift (credits) that were assessed with the UMAM method.

Table 1  
Functional Losses and Lifts

Impacted Area	Acres Impacted	Loss in FCUs (Debits)
Existing Cypress w/Melaleuca	9.26	2.13
Existing Cypress	6.3	1.89
Open water	56.76	11.35
Uplands	34.78	5.22
Canal/Ditch	0.24	.012
Cattail/Salix Marsh	10.66	2.77
<b>TOTAL</b>	<b>118</b>	<b>23.4</b>

	Acres Improved	Lift in FCUs (Credits)
Wetland areas to be created	56.76	15.26
Wetland areas to be restored	26.46	12.82
Upland Areas to be converted to Wetlands	34.78	10.17
<b>TOTAL</b>	<b>118</b>	<b>38.25</b>

Lift in FCUs (Credits) = 38.25

Loss in FCU (Debits) = 23.4

Net total FCUs (Credit) = 14.85

### 3.0 Monitoring Plan

A monitoring plan will be implemented as part of the ecological restoration and wetland enhancement in the Ag Field enhancement area of the Southern CREW Critical Project. The monitoring map contains the locations of the panoramic photo stations, vegetation transects and staff gauges. Each photo station and vegetation monitoring transect will run through each of the proposed wetland enhanced habitats. See Exhibit page 10.

#### 3.1 Monitoring Activities

Monitoring is an essential part in evaluating the success of the implemented creation and enhancement plan and determines the need of adaptive management. Monitoring activities include the following:

- Panoramic photographs
- Native vegetation composition
- Native vegetation percent cover per line intercept transect
- Growth report for each species planted per acre where applicable
- Exotic/nuisance species composition
- Exotic/nuisance species percent cover
- Survival rate of planted vegetation
- Wildlife utilization
- Wetland water levels at representative sites

### **3.1.1 Monitoring Parameters**

Parameters selected for monitoring will include a representation of the various vegetative communities within the created and enhanced wetland. Parameters will include:

#### **Vegetative cover and composition**

- Vegetation transects will bisect several proposed habitat sites (See Exhibit page 10 for location of transects).
- Data will be collected from line intercept transects at each habitat type along each vegetation transect.
- Line intercepts should be 10 meters in length segmented into one meter increments.
- Species occurrence and type that cross the line are recorded at each one meter mark. Vegetation composition, percent cover, size (for trees diameter at breast height (dbh) should be taken) and condition (healthy, dead, stressed, etc.) of species encountered at each one meter mark along the transect should also be recorded.

#### **Hydrologic conditions**

- Staff gauges will be installed in two of the deep water refugia areas to monitor water depths and will be manually read then recorded on the associated monitoring sheet

#### **Wildlife observed**

- Record all visual sightings of birds, mammals, reptiles and amphibians utilizing the site.
- Quantify or approximate the number of birds, reptiles and amphibians observed.
- Record any animal tracks and nests as evidence of wildlife utilization.

#### **Miscellaneous**

- Photos taken from the photo-stations should be panoramic. (See Exhibit page 10 for locations).
- Photograph wildlife utilization and representative species within the created and enhanced wetland.
- Record weather conditions
- Record time of day monitoring took place
- Record overall condition of the created and enhanced wetlands. Include survival rate of planted species, invasion of any exotic species within the created / enhanced wetland, percent cover of nuisance / exotic species within the created/enhanced wetland.

### **3.2 Monitoring Schedule**

Monitoring activities will occur during the wet and dry season each year for a period of five years. At the conclusion of a monitoring year, annual monitoring reports will be submitted to the USACE for review and approval. After construction of the proposed

wetland is complete, as-builts will be submitted and baseline monitoring will be conducted. Specific dates for the enhancement and monitoring activities will be determined according to permit acquisition and approval.

**Table 2**  
**Monitoring Schedule**

<b>Time schedule for completion of creation and enhancement/monitoring activities</b>	
<b>Activity</b>	<b>Completion date</b>
Submit baseline monitoring report	Two months after completion of construction
Submit legal description of conservation areas	Two months after completion of construction
Submit recorded legal documents	Two months after completion of construction
Grading of wetland creation and enhancement area	Nine months after completion of construction
Planting of wetland creation and enhancement area	Nine months after completion of construction
Complete initial exotic removal	Nine months after completion of construction
Conduct Baseline Monitoring	Six months after completion of construction
Submit As-Builts	Six months after completion of construction
Submit time zero monitoring report	Nine months after completion of construction
Submit first monitoring report	One year after time zero report
Submit second monitoring report	One year after first report
Submit third monitoring report	One year after second report
Submit fourth monitoring report	One year after third report
Submit fifth monitoring report	One year after fourth report

#### **4.0 Maintenance Plan**

The threshold for maintenance requirements will be any area that has five percent or more total vegetative coverage by exotic vegetation at any time during the monitoring period. Additionally, any areas that have not achieved the 80 percent coverage requirement at the end of two years after supplemental planting has begun will receive additional supplemental planting to meet this criterion.

The created and enhanced wetland areas are expected to be self-sustaining once the planted native vegetation is established. Monitoring data and the USACE's professional judgment will dictate the type and frequency of short-term maintenance activities. Maintenance activities shall include, but are not limited to:

- Planting supplemental wetland vegetation as necessary to maintain the wetland functions and values and achieve 80% coverage.
- Removal of Exotics

## **5.0 Monitoring Reports**

Each monitoring report will include a table of contents as outlined below and the following information with recommendations for maintenance if necessary.

Table of Contents:

Executive Summary

Project Overview

Sampling Methodologies

- Vegetative cover and composition
- Hydrologic conditions
- Wildlife Utilization
- Miscellaneous Information

Results

- Vegetative cover and composition
- Hydrologic conditions
- Wildlife Utilization
- Miscellaneous Information

Conclusions and Recommendations

Appendix

- Photographs
- Planting scheme (acreage of vegetative zones; quantities and size planted within each zone)
- Field notes, etc.

Exhibits should include:

- Project location map
- Plan View of Planting Scheme
- Typical Cross Sections
- Exhibit showing location of line transects, photo stations
- Exhibits, should depict North arrows

## **6.0 Adaptive Management**

Wetland enhancement and creation activities will be coordinated with the surrounding hydropattern restoration of the Southern CREW Imperial River Flow way Critical Restoration project.

## Eastern Indigo Snake *Drymarchon corais couperi* (Holbrook)

The eastern indigo snake is a non-poisonous, federally protected snake and is also known as gopher snake, blue indigo snake or blue bull snake. The eastern indigo snake is state and federally protected. It may occur in any habitat traversed within the construction area. They may not be captured, harmed, harassed, wounded, hunted, etc. The U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission need your cooperation to help protect this threatened species.

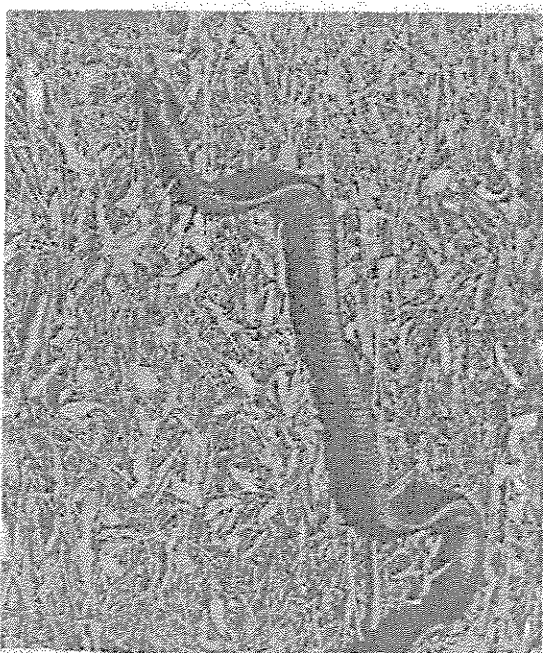
### DESCRIPTION

The eastern indigo snake is shiny, blue-black in color with white, coral or rust reddish color around the chin, throat and cheeks. It is a thick-bodied snake that averages 6 feet in length and can grow to 8.6 feet. Young are similar to adults but some are lighter and show a blotched dorsal pattern.

### LIFE HISTORY AND ECOLOGY

Within the construction area, the indigo snake is most likely to be found along the edges of swamps and marshes where food is abundant. This snake is also found in pine flatwoods and hardwood communities. It feeds on fish, frogs, toads, lizards, snakes, small turtles, birds, and small mammals. It is diurnal, i. e., active during the day. Eggs are laid in May or June (5-10 eggs), and hatchlings are 18-24 inches long. Hatchlings may appear as late as August and September. State law prohibits the "taking, attempting to take, pursuing, hunting, molesting, capturing or killing, possessing, transporting, or selling of this species or parts thereof or their nests or eggs" (Wildlife Code of the State of Florida, Chapter 39, F.A.C., Rule 39-27.002). Similarly, federal law prohibits "harrasing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing or collecting, or attempting to engage in any such conduct (collectively defined as taking); or possessing, selling, delivering, carrying, transporting, or shipping protected species" [Endangered Species Act of 1973, as amended, 16, U.S.C. 1531(a)].

If You Should See an Eastern Indigo Snake...



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If the snake is observed, do not disturb it. Any disturbance of this snake's activity is prohibited. If an eastern indigo snake is sighted, construction shall cease and a qualified biologist at Kevin L. Erwin Consulting Ecologist, Inc. will immediately be contacted (see Kevin L. Erwin Consulting Ecologist, Inc. address and phone number). The eastern indigo snake will be allowed sufficient time to move away from the site or be relocated by a qualified biologist before construction or clearing is resumed. Only a qualified biologist will be permitted to come in contact with the eastern indigo snake. Construction can resume after the eastern indigo snake has moved from the area or has been relocated.

Please report any sighting of this snake. If a dead eastern indigo snake is found, the specimen should be thoroughly soaked in water, frozen immediately and the South Florida Ecosystem office contacted within 24 hours at (561) 562-3909. Sightings of eastern indigo snakes should be reported immediately to the following:

### Additional Information

Jay Slack  
South Florida Ecosystem Office  
U. S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960  
(561) 562-3909

William R. Cox  
Kevin L. Erwin Consulting Ecologist, Inc.  
2077 Bayside Parkway  
Fort Myers, Florida 33901  
(941) 337-1505

James Beever  
Florida Fish and Wildlife Conservation Commission  
Office of Environmental Services  
29200 Tuckers Grade  
Punta Gorda, Florida 33955  
(941) 575-5765

### References

- Ashton, R. E., Jr. and P. S. Ashton. 1988. Handbook of Reptiles and Amphibians of Florida, Part One, The Snakes. Windward Publishing, Inc., Miami, Florida.
- Logan, T.H. 1997. Florida's Endangered Species, Threatened Species, and Species of Special Concern. Florida Game and Fresh Water Fish Commission, Tallahassee, FL.
- Moler, P. E. 1992. Rare and Endangered Biota of Florida, Amphibians and Reptiles. Volume III. University Press of Florida, Tallahassee, Florida.
- Smith, H. M. and E. D. Brodie, Jr. 1982. A Guide to Field Identification, Reptiles of North America. Golden Press, New York.